

**QUESTIONS?
(206) 684-3800
CONTACT AN
ENERGY ADVISOR**

EXISTING BUILDING COMMISSIONING **FAQ**

WHAT IS EXISTING BUILDING COMMISSIONING?

Existing Building Commissioning (EBCx) is a systematic process for optimizing a building's operations. By making improvements to existing equipment and systems, building owners and operators can achieve greater energy efficiency, reduce costs, and create a more comfortable environment for occupants.

WHAT ARE THE PROGRAM BENEFITS?

- Typical energy savings of 7–20%
- Reduced operating and maintenance costs
- Improved equipment life and reduced system failures
- Greater occupant comfort and productivity
- Increased building asset value
- Typical payback period of two years or less
- Satisfy your Seattle Building Tune-Up requirement

WHAT INCENTIVES ARE OFFERED?

The initial assessment of a facility's energy use is fully funded up to \$4,000. Buildings that qualify for EBCx receive a fixed incentive based on the conditioned floor area. Additional incentives are available for demonstrated performance (energy savings). Incentives are available for both Seattle City Light and Puget Sound Energy customers who qualify.

WHAT ARE THE ELIGIBILITY REQUIREMENTS?

EBCx is open to City Light commercial customers who own or operate buildings that meet these characteristics:

- Roughly 50,000 square feet of conditioned space

- Building(s) use significantly more energy than similar buildings
- 75% or more of conditioned space is leased or in-use year round

WHAT ARE THE CUSTOMER REQUIREMENTS TO PARTICIPATE?

Building owners and operators must be willing to:

- Invest up to \$0.10/sq. ft. (electric only) or up to \$0.15 sq. ft. (electric and gas combined) in commissioning costs.*
- *Investment after utility incentives received.*
- Use a third-party commissioning provider that meets City Light's experience requirements
- Commit to 30–50 hours of senior operations and maintenance staff time to support program implementation and training
- Measure and document building improvements during the first year after implementation

FAQ CONTENT OVERVIEW

Topics covered in this document include:

- Program benefits and incentives **01**
- Eligibility and customer requirements..... **01**
- Incentive structure **02**
- EBCx process and timeline **03**
- Commissioning providers..... **04**
- EBCx resources **04**
- Project process flowchart..... **05**

INCENTIVE STRUCTURE

INCENTIVE TYPE	SEATTLE CITY LIGHT (ELECTRIC)	SEATTLE CITY LIGHT & PUGET SOUND ENERGY (ELECTRIC & GAS)
ASSESSMENT <i>Up to 100% of assessment costs</i>	\$4,000	\$5,000
COMMISSIONING <i>Up to 75% of commissioning provider costs</i>	\$0.25/sq. ft.	\$0.35/sq. ft.
PERFORMANCE* <i>Up to 100% of provider and implementation costs</i>	\$0.05/kWh	\$0.05/kWh & \$0.80/therm

*First-year performance paid once savings exceed 7% for electric and 10% for gas.

If you plan to take advantage of incentives for both electric and gas use, City Light will coordinate with Puget Sound Energy. Puget Sound Energy will determine if your building qualifies for a gas incentive through their Existing Building Commissioning program.

WHAT MAKES A BUILDING A GOOD CANDIDATE FOR EBCX?

- Energy Use Intensity (EUI) is approximately 5%–10% above the performance target for the building type
See the chart below for performance targets by building type.
- Abnormally high failure rates of equipment and control systems
- Persistent issues with temperature and air flow, causing occupant discomfort
- Energy savings can be achieved primarily through improvements to equipment and control systems
- Equipped with a Direct Digital Control building automation system
- Building has not been commissioned within the past 5 years

Note: If your building requires significant renovations, equipment replacements, or plans for a change in ownership within the next 5 years, City Light's other commercial incentives could support your efforts.

PERFORMANCE TARGETS BY BUILDING TYPE

BUILDING TYPE	TARGET EUI (KBTU/SQ FT/YR)
COLLEGE/UNIVERSITY	102
HIGH-RISE MULTIFAMILY	32
HOSPITAL	215
HOTEL	71
K-12 SCHOOL	49
OFFICE	69
OFFICE (MEDICAL)	60
MIXED-USE PROPERTY	58
GROCERY STORE	220
OTHER	75

Based on the Washington Clean Building Performance Standards. All official legislative requirements and resources are available on the Washington Department of Commerce website

WHAT IS THE COST OF COMMISSIONING A BUILDING?

Commissioning costs vary significantly depending on the size of the conditioned space, scope of the commissioning effort, availability of building system documentation, and Building Automation System (BAS) trending capabilities.

According to a study from the Building Commissioning Association*, commissioning costs range from less than \$0.10 to \$1.15/sq. ft.

For buildings 50,000–250,000 sq. ft. in size, the cost of commissioning averaged \$0.42/sq. ft.

* The Building Commissioning Association's "The Value of Commissioning Study," presented at the 2019 ASHRAE conference: www.bcxa.org/knowledge-center/value-of-cx-project/

WHAT IS RETROCOMMISSIONING VS MONITORING-BASED COMMISSIONING?

There are two pathways to participate in Seattle City Light's EBCx program, both led by a third-party commissioning (Cx) provider.

Retro-commissioning (RCx) identifies efficiency improvements through a one-time intensive investigation of system performance compared to facility operating requirements. Changes to operations are documented and facility operators are trained to maintain efficient operations.

With **monitoring-based commissioning (MBCx)**, a Fault Detection & Diagnostics (FDD) software application is deployed. The FDD application continuously monitors building system operations and applies algorithms to identify inefficient system operations or "faults". The Cx provider and facility staff investigate and resolve faults to improve efficiency. MBCx is the foundation of an ongoing optimization process.

RCX PROCESS



MBCX PROCESS



WHAT ARE THE MOST COMMON COMMISSIONING MEASURES?

EBCx is a comprehensive effort that examines all energy-using systems in the building. Over 95% of efficiency measures implemented during EBCx include:

- Modify sequence of operations
- Modify setpoints
- Implement advanced reset
- Operations and control – other
- Modify schedules

WHAT IS THE PROCESS AND TIMELINE FOR IMPLEMENTING AN EBCX PROJECT?

Application Phase (1–2 months)

1. Owner submits an application and City Light screens the building's performance:
 - a. City Light screens building's performance for indicators that EBCx is likely to produce energy savings >7%.
 - b. If the building is determined to be a good candidate for EBCx, the customer is offered an EBCx incentive participation agreement.

Assessment Phase (1–3 months)

2. A high-level assessment is conducted:
 - a. Utility decides whether the customer qualifies for additional commissioning and performance incentives, and the customer decides if the program will achieve their goals and they are able to meet the requirements for participation.
 - b. The designated party receives their approved assessment incentive (100% of costs up to \$4,000).
 - c. If project is moving on to the commissioning phase, a kickoff meeting is held to finalize the building's performance baseline.

Commissioning Phase (4–12 months)

3. If pursuing monitoring-based commissioning:
 - a. Third-party commissioning provider works with the customer/IT to integrate monitoring software
 - b. Functionality is tested and documented
 - c. Commissioning provider works with the customer to monitor facility for Energy Efficiency Improvements (EEl) over a 12-month period

4. Third-party commissioning provider conducts a detailed investigation of potential Energy Efficiency Improvements (EETs):
 - a. Viable energy efficiency measures are identified.
 - b. Estimates of implementation costs and energy savings are provided.
 - c. Customer selects which measures to implement. Customer must implement all measures with a payback of 2 years or less.
5. Commissioning measures are implemented.
6. A systems manual documenting the efficient building operations is created.
7. Senior operations and maintenance staff undergo training on building operations.

Performance Phase (12–18 months)

8. Commissioning incentive is issued to customer (up to 75% of commissioning provider costs).
9. Customer measures and documents building improvements for one year; performance incentives are issued once savings exceed 7% for electric and 10% for gas (if applicable).

See flowchart on page 05.

WHAT IS THE ROLE OF A COMMISSIONING PROVIDER?

A qualified, third-party commissioning provider brings the diagnostic monitoring, testing and analysis expertise needed to uncover problems and select cost-effective solutions. These providers also offer an objective point of view on a building’s operations, which can result in greater energy and cost savings.

The commissioning provider is selected by the customer and works solely on their behalf.

WHAT QUALIFICATIONS DOES A COMMISSIONING PROVIDER NEED FOR AN EBCX PROJECT?

- Current technical knowledge and extensive, recent hands-on field experience equal to that of a professional engineer regarding:
 - Existing building commissioning, including functional testing, diagnostics, trending, energy calculations and implementing improvements
 - Building system performance and interaction with a focus on building automation control systems

- Troubleshooting common installation, maintenance and operational pitfalls for building systems
- Experience as a commissioning provider on at least two other similar commissioning projects
- Meets the qualifications of a Tune-Up Specialist defined by the Seattle Office of Sustainability & Environment Director’s Rule 2016-01

For guidance on selecting a commissioning provider, see the California Commissioning Collaborative website and “The Building Commissioning Handbook” from the Building Commissioning Association: www.bcxa.org/knowledge-center/building-commissioning-handbook

DOES CITY LIGHT OFFER A LIST OF APPROVED COMMISSIONING PROVIDERS?

For City Light EBCx projects, customers may use any qualified third-party commissioning provider they choose. Puget Sound Energy requires customers pursuing both electric and gas incentives to use a provider from the PSE-approved commissioning agent list.

We recommend customers solicit bids from several providers and check references.

WHAT OTHER RESOURCES ARE AVAILABLE ON BUILDING COMMISSIONING?

Building Commissioning Association
www.bcxa.org

California Commissioning Collaborative
www.cacx.org/index.html

CACx Existing Building Commissioning Guide
www.cacx.org/resources/documents/CA_Commissioning_Guide_Existing.pdf

Puget Sound Energy EBCx Program Details
www.pse.com/rebates/business-incentives/energy-management-programs/building-tune-up-programs



ECBX PROJECT PROCESS

